California Energy Commission

STAFF REPORT

LOCALIZED HEALTH IMPACTS REPORT

Addendum For Selected Biofuel Production Plants Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation PON-09-604

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ADDENDUM

The *Localized Health Impacts Report for Selected Biofuel Production Plants Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation PON-09-604* was posted December 24, 2010, and the 30-day public comment period ended January 24, 2011. On February 4, 2011, the California Energy Commission posted a Revised Notice of Proposed Awards resulting in an additional project proposed for funding under PON-09-604. This addendum assesses and reports on the potential localized health impacts of this additional fuel production project recommended for funding in the current 2010-2011 funding cycle.

The project assessed in this addendum is:

- Solazyme, Incorporated, "Development of Pilot Production Plants for Soladiesel RD Utilizing California Feedstocks"

This project does not require a full assessment and hence will not be subject to the 30-day public review period that applies to projects that have a potential effect on low-income communities highly impacted by pollution. The following table summarizes the project and its surrounding community.

Table 1: Community Status and Project Overview

Project	At Risk Community	CEQA Completed	Air District Permit Status	Attainment Status for Ozone, PM (2.5), PM(10)
Renewable Diesel				
Solazyme, Inc.			In Progress	Non-Attainment (All)

Source: Energy Commission staff analysis

The following is an overview of the project including a project description, information on the existing site, and discussion of the potential health impacts related to air pollutants explicitly identified in the project proposal. In addition, demographic data for the known or planned project location is provided in Table 2.

Staff reviewed results from the Environmental Justice Screening Method (EJSM) to identify projects that are located in areas with social vulnerability indicators (for example, race/ethnicity, income, proximity to sensitive land use, and exposure to air pollution) and the greatest exposure to air pollution and associated health risks. For communities not yet assessed in the EJSM, the Energy Commission identified high-risk areas as those in non-attainment air basins for ozone, particulate matter (PM) (2.5), and PM (10) that have high poverty and high minority rates, as well as a high percentage of sensitive populations.

Project Name

Solazyme, Incorporated, "Development of Pilot Production Plant for Soladiesel RDÔ Utilizing California Feedstocks"

Project Description

Solazyme will design, configure, and operate a pilot scale bio-oil production facility that will use a heterotrophic algae growth process using fermentation equipment similar to that of corn ethanol facilities. During this project, the pilot plant will produce 1,000 gallons of bio-oil, which will result in 50 gallons of renewable diesel. The project will advance the commercialization of large-scale algal oil production by demonstrating the feasibility of converting an existing ethanol facility for use in the production of higher value, low-carbon oils. The renewable bio-oil will be refined by partner, Chevron, and road-tested in diesel vehicles from vehicle partner Ford Motor Company. Solazyme produces biofuels by growing proprietary strains of algae heterotrophically (in the dark) using standard industrial fermentation equipment. Solazyme will use energy crops to create fermentable sugars that can be fed to the algae to produce oil. The renewable diesel is equivalent to existing commercial fuels, scalable with proven technology, and commercially viable at a competitive cost.

Project Site

This project is located at 225 Gateway Boulevard, South San Francisco, California. The proposed project is an expansion of a current pilot ethanol production plant in a commercial building. The previous pilot plant run by FibroGen, Inc., was fully permitted to operate and produce small quantities of ethanol. The plant includes an enclosed fermentation vessel currently installed within a research facility and will include "off-the-shelf" equipment for oil extraction and purification.

Project Impacts and Benefits

The proposed pilot plant project will result in minimal levels of criteria pollutants and toxic air contaminants. Emissions are associated with the production of sugar beet juice, which is an ongoing operation; the natural gas process heat at Solazyme's facility; the hydrogen reformer at the Chevron refinery, and tailpipe emissions from vehicles furnished by Ford. Total Nitrous Oxide and particulate emissions will be less than 0.0002 and 0.00002 tons, respectively, over the proposed test program, which are less than the emissions associated with employee travel for one week of work. Emissions levels from the new facility will be 50 percent lower than emission levels from ethanol production because renewable diesel is compatible with existing petroleum infrastructure and can be moved in pipelines. No trucks will be needed to distribute the fuel product.

The pilot plant uses a 600 liter fermentation vessel as its production unit. This unit and associated equipment is small and will be operated on a laboratory scale. The potential localized health impact is negligible. The project will result in reduced PM emissions and less methane when compared to the former ethanol production operation.

Solazyme will use sugar beets from the Imperial Valley as a transitional primary feedstock for bio-oil production. The project promotes water management in Imperial Valley and employs best practices from the Roundtable for Sustainable Biofuels to minimize environmental impacts.

Finally, this project will create five direct jobs at Solazyme in process development and manufacturing.

Rationale for Exclusion From Localized Health Impacts Report

Solazyme will not produce significant amounts of fuel, so the project is not considered a source of emissions. Additionally, South San Francisco is not considered a low-income community highly impacted by air pollution. Therefore, the project is excluded from the assessment of localized health impacts and the corresponding 30-day public review period.

Aggregate Location Analysis and Community Impacts

Based on the above assessment and CEQA analysis, and considered with the other projects funded under this solicitation, South San Francisco is not disproportionately affected by this project. Because South San Francisco is not considered to be a low-income community highly impacted by air pollution, extensive analysis of the surrounding community is not included. Additionally, South San Francisco does not have two or more environmental justice indicators that would indicate that the community is potentially vulnerable through the implementation of this project.

Some of the notable benefits from this project include improved air quality from more efficient processing of algae oil to produce renewable diesel, conversion of fleets to use cleaner alternative fuels, and the conversion of existing facilities to produce biofuels. Additionally, the project explores the use of efficient processing of algae products to produce renewable diesel. This project is anticipated to improve the environment and result in socioeconomic benefits by generating jobs and revenue for surrounding local communities that would otherwise not be available.

The last table in this addendum provides city-level data on the community demographics where the project will be located.

Table 2: Demographic Data for Biofuel Facilities
(Percentage of total population)

City	South San Francisco
Below poverty level	5.2
Ethnicity	
Black	2.8
American Indian or Alaskan Native	0.6
Asian or Pacific Islander	30.5
Hispanic	31.8
White	44.0
Age	
< 5 years	6.5
> 65 years	12.6
Unemployment rate	10.7

Source: Unemployment Information, EDD Labor Market Information Division; Age/ethnicity demographics, U.S. Census